Annual Report

Atikokan Drinking Water System

2024

NORTHERN WATERWORKS INC.

ATIKOKAN

Contents

1 Introduction

1.1 Annual Reporting Requirements

This consolidated Annual Report (the Report) has been prepared in accordance with both section 11 (Annual Reports) and Schedule 22 (Summary Reports for Municipalities) of Ontario Regulation 170/03 (Drinking Water Systems Regulation). This Report is intended to inform both the public and Municipal Council about the operation of the system over the previous calendar year (January 1 to December 31, 2024).

Section 11 of O. Reg. 170/03 requires the development and distribution to the public of an annual report summarizing water quality monitoring results, adverse water quality incidents, system expenses and chemicals used in the water treatment process.

Schedule 22 of O. Reg. 170/03 requires the development and distribution to Council of an annual report summarizing incidents of regulatory non-compliance and associated corrective actions, in addition to providing flow monitoring results for the purpose of enabling the Owner to assess the capability of the system to meet existing and planned demand.

1.2 Report Availability

In accordance with section 11 of O. Reg. 170/03, this Report must be given, without charge, to every person who requests a copy. Effective steps must also be taken to advise users of water from the system that copies of the report are available, without charge, and of how a copy may be obtained. This Annual Report shall be made available for inspection by the public at the Atikokan Public Library and on the Town of Atikokan's website.

In accordance with Schedule 22 of O. Reg. 170/03, this Annual Report must be given to the members of Municipal Council. Section 19 (Standard of care, municipal drinking-water system) of Ontario's *Safe Drinking Water Act* (SDWA) also places certain responsibilities upon those municipal officials who oversee an accredited operating authority or exercise decision-making authority over a system. The examination of this Report is one of the methods by which municipal officials may fulfil the obligations required by section 19 of the SDWA.

System users and members of Council should contact a representative of NWI for assistance in interpreting this Report. Questions and comments may be directed to the local NWI Operations Manager or by email to compliance@nwi.ca.

2 System Overview & Expenses

2.1 System Description

The Atikokan Drinking Water System must meet extensive treatment and testing requirements to ensure that human health is protected. The operation and maintenance of the system is governed by Ontario's *Safe Drinking Water Act* and the regulations therein, in addition to requirements within system-specific environmental approvals. Important system information is summarized in Table 1.

Table 1: System information	
Drinking-Water System (DWS) Name:	Atikokan Drinking Water System
DWS Number:	220000950
DWS Owner:	The Corporation of the Town of Atikokan
DWS Operating Authority:	Northern Waterworks Inc.
DWS Category:	Large Municipal Residential
DWS Components:	• Raw water pumping station • Atikokan Water Treatment Plant • Atikokan Water distribution system
Treatment Processes:	• Coagulation, sand-ballasted flocculation, and clarification • Dual media (rapid sand) filtration • Free chlorine disinfection • pH adjustment

Water production begins as pumps at the raw water pumping station transfer source water from the Atikokan River and through a transmission line to the two proprietary Actiflo treatment units located at the Atikokan Water Treatment Plant, each of which includes a coagulation basin, injection basin, maturation basin and settling zone. Polyaluminum chloride (coagulant) is injected into the raw water immediately upstream from the coagulation basin, and water and coagulant are rapidly mixed in the basin before flow is directed to the injection basin. In the injection basin, microsand and polymer solution (flocculant) are added to facilitate the formation of robust flocs. Floc formation continues in the maturation basin before water is directed to the settling zone, where its velocity is reduced to allow for the separation and settling of floc. Supernatant then overflows into a launder and is directed to the filter units.

Impurities that were not captured and settled in the clarifier are removed by passing water through four dual media filters composed of anthracite and silica sand. The filters are periodically cleaned by reversing the flow of water through the filter using pumps. Chlorine gas (disinfectant), sodium carbonate solution (pH/alkalinity adjustment) and hydrofluorosilicic acid (fluoridation) are added to the filtrate as it is directed from the filters to the treated water storage reservoir.

Primary disinfection is achieved as disinfectant mixes with the filtrate in the reservoir. Treated water is then delivered from the reservoir to the water distribution system using pumps. Secondary disinfection requirements in the water distribution system are achieved by maintaining a free chlorine residual at all locations.

2.2 Water Treatment Chemicals

In accordance with section 11 of O. Reg. 170/03, this Report must include a list of all water treatment chemicals used by the system during the period covered by the report (summarized in Table 2). All chemicals used in the treatment process are NSF/ANSI 60 certified for use in potable water, as required by system approvals.

Table 2: Water treatment chemicals used in 2024

Treatment Chemical	Application
polyaluminum chloride (SternPAC)	coagulant
silica dioxide (Actisand)	flocculant
polymer (Superfloc C-492)	flocculant
sodium carbonate (soda ash)	pH/alkalinity adjustment
hydrofluorosilicic acid	fluoridation
chlorine gas	disinfectant

2.3 System Expenses

In accordance with section 11 of O. Reg. 170/03, this Report must describe any major expenses incurred during the reporting period to install, repair or replace required equipment. This Report also summarizes those expenses related to strengthening equipment inventories and to maintenance activities undertaken by subcontracted service providers. Major expenses incurred in 2024 are summarized in Table 3.

Table 3: Major expenses incurred in 2024

Category	Description	Expense
Maintenance	Tri-annual generator inspection and load testing(all sites)[1]	$13,675
Replace	TU5300 turbidity analyzers x4	$20,774
Replace	Replace fluorescent lighting with LED lighting	$21,754
Replace	Chlorine and fluoride room door replacement	$6,867
Replace	Filter flow meter installation and commissioning	$5,515
Maintenance	Singer valve parts and install for high lift pumps	$13,611
Maintenance	Soda ash pump	$19,062
Maintenance	Flow meter calibration verifications (all sites)[1]	$7,427
Maintenance	High Lift pump soft start	$8,212
Maintenance	Annual backflow testing	$2,237
Replace	Replace fluorescent lighting with LED lighting	$13,609
Maintenance	Annual hoist inspections (all sites)[1]	$3,764
Maintenance	Digital Engineering trouble shooting	$6,157
Replace	Back pressure and pressure relief valves for chemical	$14,965
Replace	240-volt power source for back up soda ash pump	$5,525
Replace	Scotty SCBA face masks	$1,494
Replace	Watermain, hydrants, valves and services – O'Brien (Mackenzie to Mercury)	$1,500,000

1. All sites include the raw water pumping station, water treatment plant, wastewater treatment

3 Water Quality

3.1 Overview

Water quality monitoring is conducted to determine and confirm that drinking water delivered to the consumer is safe and aesthetically pleasing. Monitoring is also required to assess compliance with legislation and to control the treatment process. In accordance with section 11 of O. Reg. 170/03, this Report must summarize the results of water quality tests required by regulations, approvals, and orders. The following sections summarize the results of all required water quality tests and compare the results to applicable water quality standards.

3.2 Microbiological Parameters

Microbiological sampling and testing requirements are provided in Schedule 10 (Microbiological sampling and testing) of O. Reg. 170/03. In 2023, a total of 354 routine source, treated and distribution water samples were collected for microbiological analysis by an accredited laboratory. Samples were collected on a weekly basis and included tests for E. coli (EC), total coliforms (TC) and heterotrophic plate counts (HPC). Results from microbiological analyses are summarized in Table 4. All results were below the associated Ontario Drinking Water Quality Standards.

Table 4: Results summary for microbiological parameters

Sample Type	# of Samples	EC Results Range[1] (MPN/ 100mL)	TC Results Range[1] (MPN/ 100mL)	# of HPC Samples	HPC Results Range (CFU/mL)
Raw Water	52	0 to 99	10 to >2420	---	---
Treated Water	113	absent	absent	51	0 to 9
Distribution	189	absent	present[2]	86	0 to 61

1. The Ontario Drinking Water Quality Standard for E. Coli and Total Coliforms in a treated or distribution sample is 'not detectable'. The presence of either parameter in a treated or distribution sample is considered an exceedance.
2. A single distribution sample at Riverland Farms detected total coliforms on September 10th 2024. Resamples were negative for total coliforms.

3.3 Operational Parameters

In accordance with Schedule 7 (Operational checks) of O. Reg. 170/03, regulated operational parameters that must be monitored include raw water turbidity, filtrate turbidity, treated water fluoride residual, and the free chlorine residuals associated with primary and secondary disinfection. Table 5 summarizes water quality results for regulated and selected unregulated operational parameters. In accordance with Schedule 6 (Operational checks, sampling and testing – general) of O. Reg. 170/03, certain operational parameters are continuously monitored. Zero (0) Adverse Water Quality Incidents (AWQI) pertaining to operational parameters occurred during the reporting period.

Table 5: Results summary for operational parameters

Parameter (Sample Type)	Number of Samples	Units	Min. Result	Max. Result	Annual Avg.	Adverse Result[1]
Turbidity (Raw Water)	255	NTU	0.593	1.97	1.57	n/a
Turbidity (Filter 1)	Continuous	NTU	0.031	1.998	0.077	>1.0
Turbidity (Filter 2)	Continuous	NTU	0.029	1.998	0.077	>1.0
Turbidity (Filter 3)	Continuous	NTU	0.028	1.998	0.077	>1.0
Turbidity (Filter 4)	Continuous	NTU	0.019	1.998	0.062	>1.0
Turbidity (Treated)	366	NTU	0.084	0.563	0.152	n/a
pH (Treated)	366	---	6.94	7.55	7.24	n/a
Aluminum Residual (Treated)	51	mg/L	0.023	0.510	0.075	n/a
Fluoride Residual (Treated)	Continuous	mg/L	0.81	0.97	0.72	
FCR[2] (Treated)	Continuous	mg/L	1.53	3.85	2.35	n/a
FCR[3] (Distribution)	450+	mg/L	0.15	2.20	n/a	<0.05

1. Adverse results for filtrate turbidity are prescribed within Schedule 16 of O. Reg. 170/03. There are additional factors not included in the table that are necessary to determine whether a result is adverse, such as the duration of the result.
2. FCR = free chlorine residual. There is no adverse result corresponding to the treated water free chlorine residual. However, an observation of adverse water quality occurs if the residual is low enough such that water has not been disinfected in accordance with the system's *Municipal Drinking Water Licence*.
3. Free chlorine residuals are tested at various locations in the distribution system. There were no AWQIs for low chlorine residual in the distribution system.

3.4 Conventional Filtration Performance

In accordance with the system's *Municipal Drinking Water Licence*, conventional filtration facilities must meet certain performance criteria in order to claim removal credits for Cryptosporidium oocysts and Giardia cysts. In addition to continuously monitoring filtrate turbidity and other requirements, filtrate turbidity must be less than or equal to 0.3 NTU in at least 95% of the measurements each month. Table 6 summarizes filtrate turbidity compliance against the <0.3 NTU/95% performance criterion. Minimum and maximum values in the table correspond to the proportion of time that filtered water turbidity was less than or equal to 0.3 NTU in a calendar month in 2024. No AWQIs pertaining to conventional filtration performance occurred during the reporting period.

Table 6: Filtration performance summary

Filter	Minimum Result	Maximum Result	Adverse Result
Filter 1	99.4%	100%	<95%
Filter 2	96.5%	100%	<95%
Filter 3	98.8%	100%	<95%
Filter 4	98.8%	100%	<95%

3.5 Nitrate & Nitrite

Treated water is tested for nitrate and nitrite concentrations on a quarterly basis in accordance with Schedule 13 (Chemical sampling and testing) of O. Reg. 170/03. Nitrate and nitrite results are provided in Table 7. All results were below the Ontario Drinking Water Quality Standards.

Table 7: Nitrate and nitrite results

Sample Date	Nitrate		Nitrite	
	Result (mg/L)	ODWQS (mg/L)	Result (mg/L)	ODWQS (mg/L)
No sample[1]		10		1
14-May-2024	<0.020		<0.010	
15-Aug-2024	<0.020		<0.010	
12-Nov-2024	0.021		<0.010	

[1]Q1 nitrate/nitrite samples were not taken. The Ministry was notified of this sampling error.

3.6 Trihalomethanes & Haloacetic Acids

Trihalomethanes (THMs) and haloacetic acids (HAAs) are normally sampled on a quarterly basis from a distribution system location that is likely to have an elevated potential for their formation, in accordance with Schedule 13 (Chemical sampling and testing) of O. Reg. 170/03. Total THM and HAA results are provided in Table 8 and Table 9, respectively. Compliance with the provincial standards for trihalomethane and haloacetic acid concentrations is determined by calculating a *running annual average* (RAA) each quarter.

Table 8: Total THM results

Sample Date	Result (µg/L)	Quarterly Average (µg/L)
13-Feb-2023	62.0	62.0
[1]Q1 Regulatory Average (RAA)		67.3
14-May-24	77.0	77.0
Q2 Regulatory Average (RAA)		66.5
15-Aug-24	114	114
Q3 Regulatory Average (RAA)		75.9
12-Nov-24	66.8	66.8
Q4 Regulatory Average (RAA)		80.0
ODWQS Limit (RAA)		100

A THM sample was not taken in Q1 2024. The Ministry was notified of this sampling error. In this situation, the average of all results for the same parameter obtained in the same quarter in the previous year must be used to calculate the RAA. This will ensure the calculation maintains the seasonal variation in the RAA. The 2024 running annual averages for THMs were below the respective Ontario Drinking Water Quality Standards.

Three (3) AWQIs were reported for an HAA exceedance in 2023. Samples were taken monthly instead of quarterly throughout 2024 to monitor the levels more closely. HAA sampling may return to quarterly sampling in 2025 as there were no further exceedances.

Table 9: Total HAA results

Sample Date	Result (µg/L)	Quarterly Average Result (µg/L)
23-Jan-24	54.4	67.0
13-Feb-24	77.9	
27-Mar-24	68.7	
Q1 Regulatory Average (RAA)		77.6
16-Apr-24	61.8	73.8
14-May-24	76.4	
25-Jun-24	83.3	
Q2 Regulatory Average (RAA)		75.8
30-Jul-24	118	96.2
15-Aug-24	91.0	
17-Sep-24	79.7	
Q3 Regulatory Average (RAA)		78.4
30-Oct-24	74.0	76.3
12-Nov-24	64.0	
5-Dec-23	75.6	
Q4 Regulatory Average (RAA)		76.5
ODWQS (RAA)		80

3.7 Lead Sampling

In accordance with Schedule 15.1 (Lead) of O. Reg. 170/03 and based upon favourable community lead sampling results following the Winter 2022-3 sample period, the Atikokan Drinking Water System qualified for the reduced sampling schedule with plumbing exemptions. Two (2) distribution system samples must now be collected and analyzed for pH and alkalinity during the two lead sampling periods. Additionally, these distribution system samples must be analyzed for lead in every third 12-month period after the plumbing sample exemption was activated. Table 10 summarizes the most recent results of community lead sampling conducted in 2024.

Table 10: Distribution pH, alkalinity, and lead sampling results

Sample Date	Distribution Sampling Location	pH	Alkalinity (mg/L)	Lead Result (µg/L)	Lead ODWQS (µg/L)
2-Apr-2024	Hydrant 18-01-A	7.24	37.8	---	10
2-Apr-2024	Hydrant 9-08-A	7.26	38.7	---	
3-Sep-2024	Hydrant 13-05-B	6.80	23.4	---	
3-Sep-2024	Hydrant 18-01-A	6.82	22.7	---	

1. Lead will next be tested in distribution samples during the Summer 2025 sampling period.

3.8 Inorganic & Organic Parameters

Most inorganic parameters are sampled on an annual basis in treated water in accordance with Schedules 13 (Chemical sampling and testing) and 23 (Inorganic parameters) of O. Reg. 170/03. Sodium is sampled every five (5) years in treated water in accordance with Schedules 13 and 23 of O. Reg. 170/03. Although grab samples may be analyzed, regulatory testing for fluoride is achieved using continuous monitoring equipment in accordance with Schedule 6 of O. Reg. 170/03. The most recent inorganic parameter sampling results are provided in Table 11. All results were below the associated Ontario Drinking Water Quality Standards.

Table 11: Inorganic parameter sampling results

Parameter	Most Recent Sample Date	Units	Result	ODWQS
Antimony	30-Apr-2024	µg/L	<0.60	6
Arsenic	30-Apr-2024	µg/L	<1.0	10
Barium	30-Apr-2024	µg/L	<10	1000
Boron	30-Apr-2024	µg/L	<50	5000
Cadmium	30-Apr-2024	µg/L	<0.10	5
Chromium	30-Apr-2024	µg/L	<1.0	50
Fluoride	8-Sep-2022	mg/L	0.721	1.5
Mercury	30-Apr-2024	µg/L	<0.10	1
Selenium	30-Apr-2024	µg/L	<1.0	50
Sodium	8-Sep-2022	mg/L	15	20
Uranium	30-Apr-2024	µg/L	<2.0	20

Organic parameters are sampled on an annual basis in treated water in accordance with Schedules 13 (Chemical sampling and testing) and 24 (Organic parameters) of O. Reg. 170/03. These parameters include various organic acids, pesticides, herbicides, PCBs, volatile organics and other chemicals. Sampling for all organic parameters was conducted on April 30, June 4, July 2, July 23, September 3, and October 29th 2024, and results are provided in Table 12. All results were below the associated Ontario Drinking Water Quality Standards.

Table 12: Organic parameter sampling results

Parameter	Result (µg/L)	ODWQS (µg/L)	Parameter	Result (µg/L)	ODWQS (µg/L)
Alachlor	<0.050	5	Diuron	<0.050	150
Atrazine & Metabolites	<0.14	5	Glyphosate	<0.20	280
Azinphos-methyl	<0.100	20	Malathion	<0.0250	190
Benzene	<0.50	1	MCPA	<0.00100	100
Benzo(a)pyrene	<0.005	0.01	Metolachlor	<0.0250	50
Bromoxynil	<0.250	5	Metribuzin	<0.100	80
Carbaryl	<0.050	90	Monochlorobenzene	<0.50	80
Carbofuran	<0.0250	90	Paraquat	<1.0	10
Carbon Tetrachloride	<0.20	2	Pentachlorophenol	<0.50	60
Chlorpyrifos	<0.10	90	Phorate	<0.250	2
Diazinon	<0.0250	20	Picloram	<0.50	190
Dicamba	<0.10	120	Total PCBs	<0.030	3
1,2-Dichlorobenzene	<0.50	200	Prometryn	<0.0250	1
1,4-Dichlorobenzene	<0.50	5	Simazine	<0.100	10
1,2-Dichloroethane	<0.50	5	Terbufos	<0.100	1
1,1-Dichloroethylene	<0.50	14	Tetrachloroethylene	<0.50	10
Dichloromethane	<1.0	50	2,3,4,6-Tetrachlorophenol	<0.50	100
2,4-Dichlorophenol	<0.20	900	Triallate	<0.100	230
2,4-D	<0.050	100	Trichloroethylene	<0.50	5
Diclofop-methyl	<0.100	9	2,4,6-Trichlorophenol	<0.20	5
Dimethoate	<0.050	20	Trifluralin	<0.10	45
Diquat	<1.0	70	Vinyl Chloride	<0.50	1

*Annual samples were taken, but analysis of VOC's was not completed. The Ministry was notified of this sampling error.

3.9 Special Herbicide Monitoring

Treated water samples are collected and tested for common herbicides during the spring and summer months. This program is intended to monitor water quality before, during and after annual vegetation control activities are undertaken with respect to the railway right-of-way. The results from additional monitoring for herbicides are provided in Table 13. The table also includes the results from samples collected as part of the routine sampling program described in section 3.8. No herbicides were detected in any of the samples and all results were below the associated Ontario Drinking Water Quality Standards.

Table 13: Additional herbicide monitoring results

Parameter		Bromoxynil	2,4-D	Dicamba	Glyphosate	MCPA	Picloram	Diuron
ODWQS (µg/L)		5	100	120	280	100	190	150
Sample Date & Type		Results (µg/L)						
30-Apr-2024	Treated	<1.00	<0.250	<0.10	<0.20	<0.00100-	<0.50	<0.050
4-June-2024	Treated	<0.250	<0.050	<0.10	<0.20	<0.050	<0.50	<0.050
2-Jul-2024	Treated	<0.050	<0.050	<0.10	<0.20	<0.000050-	<0.20	<0.050
23-Jul-2024	Treated	<0.250	<0.050	<0.10	<0.20	<0.000050-	<0.50	<0.050
3-Sep-2024	Treated	<0.250	<0.250	<0.10	<0.20	<0.000250-	<0.50	<0.050
29-Oct-2024	Treated	<0.050	<0.050	<0.10	<0.20	-<0.000050	<0.10	<0.050

3.10 Environmental Discharge Sampling

The *Municipal Drinking Water Licence* for the Atikokan Drinking Water System requires additional sampling associated with discharges to the natural environment. During normal water treatment plant operation, process wastewater is transferred directly to the wastewater collection (sanitary sewer) system. If conditioned process wastewater is discharged to the natural environment, as may be the case during the management of a treatment process upset, composite samples must be collected and analyzed for total suspended solids (TSS). The *Licence* also requires that the effluent discharged to the natural environment has an annual average TSS concentration below 25 mg/L. In 2024, there were zero (0) discharge events.

3.10 Harmful Algal Bloom Monitoring

Starting in 2022 a requirement was added to the Municipal Drinking Water License to monitor for Harmful Algae Blooms. If a bloom is identified or suspected, then microcystin testing must be undertaken. According to the HAB plan sampling must continue for three (3) weeks of no microcystin identified. There were zero (0) reported or suspected blooms during the standard monitoring period in 2024.

There were also no suspected or occurring HABs outside the standard period of June 1 to October 31. Historic sample results have consistently identified no microcystin in raw or treated water when algal blooms are observed. Table 13 provides a summary of suspected or occurring HABs in Hudson since monitoring began.

Table 13: Recent historical algal bloom summary

Year	Suspected	Harmful Algal Blooms
2022	0	0
2023	1	0
2024	0	0

4 Water Production

4.1 Overview

In accordance with Schedule 22 (Summary Reports for Municipalities) of O. Reg. 170/03, this Annual Report must include certain information for the purpose of enabling the Owner to assess the capability of the system to meet existing and planned uses. Specifically, this Report must include a summary of the quantities and flow rates of the water supplied during the reporting period, including monthly average and maximum daily flows. The Report must also include a comparison of flow monitoring results to the rated capacity and flow rates approved in the system's *Municipal Drinking Water Licence*.

4.2 Flow Monitoring Results

Throughout the reporting period the Atikokan DWS operated within its rated capacity and supplied a total of 603,917 m^3 of treated water. On an average day in 2024, 1,665 m^3 of treated water was supplied to the community, which represents 27% of the rated capacity of the Atikokan Water Treatment Plant (6,048 m^3/day). The maximum daily flow in 2024 was 3,275 m^3/day, which represents 54% of the rated capacity of the treatment facility. Flow monitoring results are summarized in Figure 1 and Table 14.

Figure 1: 2024 average and maximum daily treated water flows

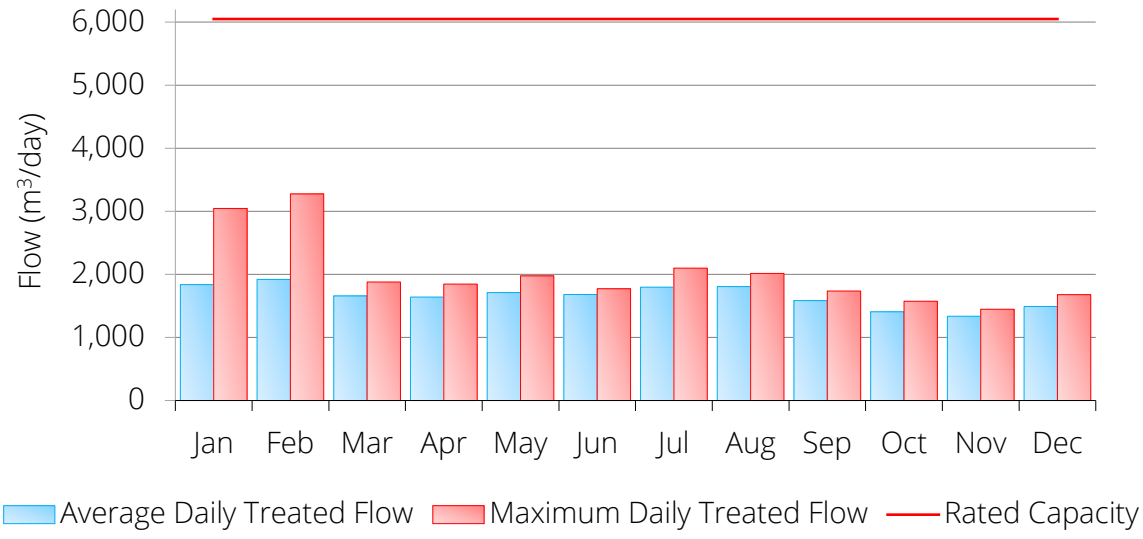

Table 14: 2024 water production summary

Month	Total Volumes (m^3)		Daily Flows (m^3/day)		Capacity Assessments[1]	
	Raw Water	Treated Water	Average - Treated	Maximum - Treated	Average - Treated	Maximum - Treated
Jan	71,270	56,957	38%	3,045	30%	50%
Feb	61,440	53,754	36%	3,275	32%	54%
Mar	60,670	51,397	32%	1,879	27%	31%
Apr	57,740	49,216	32%	1,846	27%	31%
May	64,920	53,039	35%	1,976	28%	33%
Jun	60,170	50,422	33%	1,772	28%	29%
Jul	62,950	55,713	34%	2,099	30%	35%
Aug	71,460	55,989	38%	2,015	30%	33%
Sep	66,320	47,510	37%	1,736	26%	29%
Oct	59,700	43,608	32%	1,574	23%	26%
Nov	55,160	40,084	30%	1,447	22%	24%
Dec	56,350	46,228	31%	1,678	25%	28%
Total	748,150	603,917	---	MAX:	---	MAX:
Average	62,346	50,326	34%	3,275	27%	54%

1. Capacity assessments compare the average and maximum daily treated water flows to the 6048 m^3/day rated capacity of the treatment facility.

4.3 Recent Historical Flows

Table 15 summarizes recent historical flow monitoring results for the Atikokan Drinking Water System. There were small decreases in the volumes of source water withdrawn and treated water supplied in 2024 when compared to 2023, and average daily treated water flows in 2024 were similar to 2023. In addition to population factors, annual variations in average daily flows are in part attributable to the frequency and severity of distribution system leaks and to the quantities of water used to prevent lines from freezing.

Table 15: Recent historical water production summary						
Year	Total Volumes (m^3)		Daily Flows (m^3/day)		Annual % Change	
	Raw Water	Treated Water	Average – Treated	Maximum – Treated	Raw Water	Treated Water
2011	762,600	615,934	1,687	3,889	-4.4%	-0.6%
2012	747,243	642,622	1,756	3,082	-2.0%	+4.3%
2013	798,360	639,019	1,751	5,530	+6.8%	-0.6%
2014	943,794	789,592	2,163	3,770	+18.2%	+23.6%
2015	1,029,030	825,522	2,262	4,124	+9.0%	+4.6%
2016	771,350	656,030	1,792	3,389	-25.0%	-20.5%
2017	768,291	639,453	1,752	2,813	-0.4%	-2.5%
2018	927,760	785,846	2,153	3,464	+20.8%	+22.9%
2019	789,460	673,698	1,846	3,834	-14.9%	-14.3%
2020	854,630	728,241	1,990	3,227	+8.3%	+8.1%
2021	695,660	588,926	1,613	2,888	-18.6%	-19.1%
2022	710,850	592,321	1,621	4214	+2.2%	0.6%
2023	750,440	633,871	1,740	4543	+5.6%	+7.0%
2024	748,150	603,917	1,655	3,275	-0.3%	-4.7%

5 Compliance

5.1 Overview

Northern Waterworks Inc. and the Town of Atikokan employ an operational strategy that is committed to achieving the following goals:

- Providing a safe and reliable supply of drinking water to the community of Atikokan;
- Meeting or exceeding all applicable legislative and regulatory requirements; and,
- Maintaining and continually improving the operation and maintenance of the system.

The following sections will summarize incidents of adverse water quality and regulatory noncompliance that occurred during the reporting period. NWI is committed to employing timely and effective corrective actions to prevent the recurrence of identified incidents of adverse water quality and noncompliance.

5.2 Adverse Water Quality Incidents

In accordance with section 11 (Annual Reports) of O. Reg. 170/03, this Report must summarize any reports made to the Ministry under subsection 18(1) (Duty to report adverse test results) of *the Act* or section 16-4 (Duty to report other observations) of Schedule 16 of O. Reg. 170/03. Additionally, this Report must describe any corrective actions taken under Schedule 17 of O. Reg. 170/03 during the period covered by the report.

The six (6) adverse water quality incidents that occurred during the reporting period are summarized below.

- AWQI 164277 (January 3, 2024)

A class 2 watermain break occurred at the intersection of Birch & Maple. An air gap could not be immediately established and maintained, but no evident or suspected contamination of the watermain was observed and *no* contaminated water was directed to users. The issue was immediately reported by Town staff to the Ministry's Spills Action Centre and to the Northwestern Health Unit on January 3, 2024. A precautionary Boil Water Advisory (PBWA) was issued to affected customers on January 3.
Repairs were made to a circumferential break on the 6" watermain and watermains in affected and adjacent areas were flushed. The distribution chlorine residual was found to be acceptable and two sets of samples, taken 24 hours apart tested absent for E.coli and Total coliforms. The PBWA was rescinded on January 15

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- AWQI 164945 (May 14, 2024)

A treated water sample taken April 30, 2024 had a result of <0.5ug/L for Clopyralid. Clopyralid is a pesticide not specifically listed in Schedule 2 to the Ontario Drinking Water Quality Standards (ODWQS). In accordance with section 16-3 (Duty to report under s. 18 of the Act) of Schedule 16 of O. Reg. 170/03, an AWQI report is required when a result in a sample of drinking water indicates that the concentration of a pesticide not listed in Schedule 2 to the ODWQS exceeds 0.1ug/L. The laboratory Detection Limit was raised above the 0.1ug/L limit because dilution was required to address Internal Standard response problems caused by matrix interference.

Notifications to the Northwestern Health Unit and Spills Action Centre were made by NWI on May 14, 2024. A resample taken on May 21, 2024 showed a result of <0.1ug/L and the Notice of Issue Resoiution was submitted to the Ministry on May 28, 2025.

- AWQI 165148 (June 6, 2024)

During scheduled water main isolation for planned construction, thrust blocks failed at O'Brien and Main Streets and a watermain break occurred due to the separation of an auxiliary line from a hydrant. During replacement the auxiliary valve separated from the main because the valve/hydrant was originally installed with no restraints. An air gap was initially established, but could not be maintained when the auxiliary valve failed. No evident or suspected contamination of the watermain was observed and *no* contaminated water was directed to users. The issue was immediately reported by Town staff to the Ministry's Spills Action Centre and to the Northwestern Health Unit on June 6, 2024. A Boil Water Advisory (BWA) was issued to affected customers.

Contractors repaired the main valve, auxiliary valve and hydrant. Watermains in affected and adjacent areas were flushed. The distribution chlorine residual was found to be acceptable and two sets of samples tested absent for E.coli and Total coliforms. The BWA was rescinded on June 14, 2024

- AWQI 166292 (September 12, 2024)

The laboratory reported the presence of total coliform in a routine distribution sample collected at Riverland Farms on September 10, 2024 at 11:36am ET. NWI notified the Northwestern Health Unit on September 12, 2024 and notification to the Spills Action Centre was made on September 13, 2024. Corrective action was performed in accordance with Schedule 17 of O. Reg. 170/03 and included the following:

- The watermain was flushed on 13 Sep 2024. A Boil Water Advisory was not indicated for this event.

- The chlorine dose was verified to ensure a free chlorine residual of at least 0.20mg/L was maintained.
- Resamples were collected on 13 Sep 2024 at the AWQI location (dead end) and at 2 upstream locations. All resamples tested absent for E. coli and Total coliforms.

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- AWQI 166343 (September 17, 2024)

A class 2 watermain break occurred at 120 Mercury Ave East. An air gap could not be immediately established and maintained, but no evident or suspected contamination of the watermain was observed and *no* contaminated water was directed to users. The issue was immediately reported by Town staff to the Ministry's Spills Action Centre and to the Northwestern Health Unit on September 17, 2024. A Boil Water Advisory (BWA) was issued to affected customers.

Repairs were made to a circumferential break on the 6" watermain and watermains in affected and adjacent areas were flushed. The distribution chlorine residual was found to be acceptable and two sets of samples, taken 24 hours apart tested absent for E.coli and Total coliforms. The BWA was rescinded on September 23, 2024

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- AWQI 166508 (October 1, 2024)

A class 2 watermain break occurred at 20 Rawn Rd due to a contractor striking the main with an excavator. The main was isolated and an air gap was established, but could not be maintained. Evident or suspected contamination of the watermain was observed, but *no* contaminated water was directed to users. The issue was immediately reported by Town staff to the Ministry's Spills Action Centre and to the Northwestern Health Unit on October 1, 2024. A Boil Water Advisory (BWA) was issued to affected customers.

The main was repaired and watermains in affected and adjacent areas were flushed . Three sets of samples, taken on October 2 tested absent for E.coli and Total coliforms. The BWA was rescinded on October 4, 2024

5.3 Regulatory Compliance

In accordance with Schedule 22 (Summary Reports for Municipalities) of O. Reg. 170/03, this Report must list any requirements of the *Act*, the regulations, the system's approval, drinking water works permit, municipal drinking water licence, and any orders applicable to the system that were not met at any time during the period covered by the report. Additionally, this Report must specify the duration of the failure and the measures that were taken to correct the failure.

The most recent inspection by Ontario's Ministry of the Environment, Conservation and Parks was initiated on July 9, 2024. The final inspection rating was 90.41% and five (5) incidents of regulatory noncompliance were identified, two (2) of which were non-compliance on the part of the Town of Atikokan and three (3) were non-compliances for the Operating Authority. Information concerning the duration of failures and the measures taken to address those failures is provided below.

- Noncompliance item no. 1

All continuous analysers were not calibrated, maintained, and operated in accordance with the manufacturer's instructions or the regulation. The user manual for the Hach 1720E turbidimeters states that "recalibration is recommended after any significant maintenance or repair and at least once every three months during normal operation". NWI's calibration and maintenance procedure for the 1720E turbidimeters states that "the photocell window shall be inspected and the turbidimeter body and bubble trap shall be cleaned on a quarterly basis". A review of records shows that all four turbidimeters were not calibrated in the third quarter (i.e. July- August-September), 2023. Northern Waterworks Inc. shall ensure that all filtrate effluent turbidimeters are calibrated as specified by the manufacturer. This issue of non-compliance will be reassessed during the next inspection.

- Noncompliance item no. 2 & 3

Trihalomethane (THM) sampling requirements prescribed by Schedule 13-6 of O. Reg. 170/03 were not met. A sample was not taken during the first quarter (i.e. January-February-March), 2024, as required.

Nitrate/Nitrite sampling requirements prescribed by Schedule 13-7 of O. Reg. 170/03 were not met. A sample was not taken during the first quarter (i.e. January-February-March), 2024, as required.

Operators indicated that their laboratory chain of custody form did not prompt the operator to collect a first quarter, 2024 sample and that the form has since been updated. Since the missed sample, NWI has returned to quarterly sampling. No further action is required at this time; compliance with respect to quarterly sampling for THMs, nitrates and nitrites will be re-assessed during the next inspection.

• Noncompliance item no. 4

An overall responsible operator (ORO) was not designated for all subsystems. Under O. Reg. 128/04, Condition 23. (1), the owner or operating authority of a subsystem shall designate an operator as ORO who holds a certificate for that type of subsystem and that is of the same class as or higher than the class of that subsystem. NWI is the designated operating authority for the Atikokan WTP and the Town of Atikokan is the designated operating authority for the Atikokan distribution system. An appropriately certified ORO was designated at all times for the Atikokan WTP; however, an operator (appropriately certified or otherwise) was not designated as ORO for thirty-nine (39), 24-hour periods for the Atikokan distribution system.

The expectation and interpretation of O. Reg. 128/04, Condition 23. (1) is that an ORO is designated at all times and that person must be identified through record keeping. The Atikokan distribution system logbooks include a section for ORO designation; however, this section was left blank on the 39 occasions identified above.

Non-compliance with O. Reg. 128/04, Condition 23. (1) is a matter of repeat violation for the Town of Atikokan, as it relates to ORO designation for the Atikokan distribution system:

- From January 25, 2018 to January 14, 2019, an ORO was not designated for three days. An inspection report was issued to the Town, by the ministry, on February 8, 2019, highlighting the non-compliance and requiring designation/recording of ORO in the distribution logbook, at all times.
- From December 3, 2020 to November 28, 2021, an ORO was not designated for seven days. A "Written Warning" was issued to the Town, by the ministry, on December 20, 2021. The warning letter highlighted previous non-compliances with ORO designation and clearly defined the law. The letter went on to state that the "warning...is intended to bring this matter to your attention in order for you to take the necessary corrective action to ensure compliance with the Safe Drinking Water Act and in order for you to exercise due diligence in the future... The Ministry of the Environment, Conservation & Parks will consider referring any future contraventions of O. Reg. 128/04 to the ministry's Environmental Investigations and Enforcement Branch." The warning letter was also appended to an inspection report, which was issued on January 7, 2022. The inspection report reiterated regulatory requirements/ministry expectations and made direct references to the warning letter.

Effective immediately, the Town of Atikokan shall designate an appropriately certified operator to be ORO of the distribution system, at all times; and, identify the ORO through

record keeping. This matter has been referred to the ministry's Environmental Investigations and Enforcement Branch for investigation and follow-up..

• Noncompliance item no. 5

Operators-in-charge (OICs) were not designated for all subsystems. Under O. Reg. 128/04, Condition 25. (1), the owner or operating authority of a subsystem shall designate one or more operators as OIC of the subsystem. NWI is the designated operating authority for the Atikokan WTP and the Town of Atikokan is the designated operating authority for the Atikokan distribution system. A certified OIC was designated at all times for the Atikokan WTP; however, an operator was not designated as OIC for sixty (60), 24-hour periods for the Atikokan distribution system.

The expectation and interpretation of O. Reg. 128/04, Condition 25. (1) is that an OIC is designated at all times and that person must be identified through record keeping. The Atikokan distribution system logbooks include a section for OIC designation; however, this section was left blank on the 60 occasions identified above.

Non-compliance with O. Reg. 128/04, Condition 25. (1) is a matter of repeat violation for the Town of Atikokan, as it relates to OIC designation for the Atikokan distribution system:

- From February 1, 2017 to January 24, 2018, an OIC was not at all designated. An inspection report was issued to the Town, by the ministry, on February 27, 2018, highlighting the non-compliance and requiring designation/recording of OIC in the distribution logbook, at all times.
- From January 25, 2018 to January 14, 2019, an OIC was not designated for eleven (11) days. An inspection report was issued to the Town, by the ministry, on February 8, 2019, highlighting the non-compliance and requiring designation/recording of OIC in the distribution logbook, at all times.
- From December 3, 2020 to November 28, 2021, an OIC was not designated for forty-two (42) days. A "Written Warning" was issued to the Town, by the ministry, on December 20, 2021. The warning letter highlighted previous non-compliances with OIC designation and clearly defined the law. The letter went on to state that the "warning...is intended to bring this matter to your attention in order for you to take the necessary corrective action to ensure compliance with the Safe Drinking Water Act and in order for you to exercise due diligence in the future...The Ministry of the Environment, Conservation & Parks will consider referring any future contraventions of O. Reg. 128/04 to the ministry's Environmental Investigations and Enforcement Branch." The warning letter was also appended to an inspection report, which

was issued on January 7, 2022. The inspection report reiterated regulatory requirements/ministry expectations and made direct references to the warning letter.

Effective immediately, the Town of Atikokan shall designate an appropriately certified operator to be OIC of the distribution system, at all times; and, identify the OIC through record keeping. This matter has been referred to the ministry's Environmental Investigations and Enforcement Branch for investigation and follow-up.